

**REMARKS**

The Official Action dated June 11, 2003, and the Advisory Action dated October 7, 2003, have been received and their contents carefully noted. Filed concurrently herewith is a *Request for Two Month Extension of Time*, which extends the shortened statutory period for response to November 11, 2003. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statement filed on August 28, 2001.

Claims 1-3, 5-7 and 35-61 were pending in the present application prior to the above amendment. Claims 62-73 have been added to recite additional protection to which the Applicant is entitled. Claims 1, 35, 42, 47, 54 and 58 are independent. Accordingly, claims 1-3, 5-7 and 35-73 are now pending in the present application and, for the reasons set forth in detail below, are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 1-3, 5-7, 42-46 and 54-61 as obvious based on the combination of U.S. Patent No. 5,550,070 to Funai et al. and U.S. Patent No. 5,459,090 to Yamazaki et al., and claims 35-41 and 47-53 based on the combination of Funai, Yamazaki '090 and U.S. Patent No. 5,764,321 to Koyama et al. The Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some

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teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. With respect to independent claims 1, 35 and 54, Funai and Yamazaki '090 do not teach or suggest a concentration of said crystallization promoting material in a source region and a drain region formed in said active layer is higher than a concentration of said crystallization promoting material in other regions in said active layer by two or more orders of magnitude. With respect to independent claims 42, 47 and 58, Funai and Yamazaki '090 do not teach or suggest a concentration of said crystallization promoting material in a source region and a drain region formed in said active layer is higher than a concentration of said crystallization promoting material in other regions in said active layer which is less than  $5 \times 10^{16}$  atoms/cm<sup>3</sup>.

Funai appears to disclose a source and drain regions 116, 117, a part of which may include high-concentration nickel regions 107, 109 (see Figs. 5-11). Further, Funai discloses that a concentration of nickel in the source and drain regions 116, 117, except for regions 107, 109, is the same as a concentration of nickel in other regions in an active layer, i.e. there appears to be a concentration of nickel throughout crystalline silicon film 112, which includes source and drain regions 116, 117 and channel region 118 (see Figs. 10 and 11; col. 9, lines 6-63). Still further, it is clear that regions 107, 109 of Funai are small in comparison to the total size of the source region 116 and the drain region 117 (see Figs. 10 and 11). Therefore, it simply does not follow that Funai teaches or suggests that a concentration of a crystallization promoting material in

source and drain regions 116, 117 formed in said active layer is higher than a concentration of said crystallization promoting material in other regions in said active layer, i.e. channel region 118, particularly by two or more orders of magnitude or which is less than  $5 \times 10^{16}$  atoms/cm<sup>3</sup>. At best, Funai teaches that regions 107, 109 have a concentration of nickel which is high compared to the rest of the source and drain regions 116, 117, but which is not necessarily higher than channel region 118. Despite the assertion to the contrary in the Official Action, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Funai such that source and drain regions 116, 117 would have the same concentration as the high concentration regions 107, 109, and that the concentration in regions 116, 117 would be higher than region 118 by two or more orders of magnitude, or that the concentration of region 118 would be less than  $5 \times 10^{16}$  atoms/cm<sup>3</sup>.

Yamazaki '090 and Koyama do not cure the deficiencies in Funai. The Official Action relies on Yamazaki '090 to allegedly teach "a gate electrode comprising tantalum" (page 3, Paper No. 9), and on Koyama to allegedly teach "a laminate structure (311) of silicon nitride and polyimide" (page 7, *Id.*). Funai, Yamazaki '090 and Koyama, either alone or in combination, do not teach or suggest a concentration of said crystallization promoting material in a source region and a drain region formed in said active layer is higher than a concentration of said crystallization promoting material in other regions in said active layer by two or more orders of magnitude; or a concentration of said crystallization promoting material in a source region and a drain region formed in said active layer is higher than a concentration of said crystallization promoting material in other regions in said active layer which is less than  $5 \times 10^{16}$  atoms/cm<sup>3</sup>.

Since Funai and Yamazaki '090 do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are in order and respectfully requested.

New dependent claims 62-73 have been added to recite additional protection to which the Applicant is entitled. Specifically, claims 62-73 recite a highly resistant region, which is shown, for example, in Figure 1C, with reference number 100, and a positional relationship between the gate electrode and the active layer, which is shown in Figures 3A-3D. The Applicant respectfully submits that claims 62-73 are in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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